

Zaghamont

1638

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/075,375A

DATE: 06/16/2000

TIME: 17:59:26

Input Set : A:\Seqlist.txt

Output Set: N:\CRF3\06162000\I075375A.raw

ENTERED

```

4 <110> APPLICANT: Yamamoto, H. et al.
6 <120> TITLE OF INVENTION: Plant Vde Genes and Methods Related
7   Thereto
9 <130> FILE REFERENCE: 15619/03/US
11 <140> CURRENT APPLICATION NUMBER: US 09/075,375A
C--> 12 <141> CURRENT FILING DATE: 1998-05-07
14 <150> PRIOR APPLICATION NUMBER: US 08/747,574
15 <151> PRIOR FILING DATE: 1996-11-07
17 <150> PRIOR APPLICATION NUMBER: PCT/US96/18291
18 <151> PRIOR FILING DATE: 1996-11-07
20 <150> PRIOR APPLICATION NUMBER: US 60/023,502
21 <151> PRIOR FILING DATE: 1996-08-06
23 <150> PRIOR APPLICATION NUMBER: US 60/006,315
24 <151> PRIOR FILING DATE: 1995-11-07
26 <160> NUMBER OF SEQ ID NOS: 9
28 <170> SOFTWARE: FastSEQ for Windows Version 4.0
30 <210> SEQ ID NO: 1
31 <211> LENGTH: 1981
32 <212> TYPE: DNA
33 <213> ORGANISM: Lactuca sativa
35 <400> SEQUENCE: 1
36 tgtgggttcg aattttaccc accacaagtt ttgtcctacc ataattggga taaggagtct      60
37 aattttccctt gtacaatttt ccaattttctt cctccgccac accatatata tactgtacgc      120
38 cacttcgaac gctacaatgt ttgaaaaaag acgcagattt tacaagacg gagaagataa      180
39 taagcttcaa gtactccgat cgtcaggtgg cctttggaag ccaacaaact ggctatggct      240
40 ctttctcttc acactgtatt tctctgcaaa gaggaagccc tcaatttata tgcaagatca      300
41 ccattgtaat aaaggtttca caggagtggg caacctccta ccaacataat catgatgaaa      360
42 attcgatcca acaatggata ttttaattct ttccggttgt ttacatctta taagacaagt      420
43 tctttctcag attctagcca ttgcaaggat aaatctcaga tatgcagcat cgatacaagt      480
44 tttagagaaa tacaaagatt tgatctcaaa aggggcatga ctttgattct tgaaaagcaa      540
45 tggagacaaat tcatacaatt ggctatcgta ttggtttgca catttgttat cgttcccaga      600
46 gttgatgccg ttgatgctct taaaacttgt gcttgtttac tcaaagaatg caggattgag      660
47 cttgcaaaat gtatagcaaa cccatcttgt gcggcaaacg ttgacctgtc acagacttgc      720
48 aacaatcgtc ctgacgagac cgaatgtcag ataaaatgtg gtgacttggt cgaataacagt      780
49 gtggtggacc aattcaacga gtgtgcggtt tcccgaaga aatgtgtgcc ccggaatcg      840
50 gatgtgggtg aattcccggt tccgcatcgt aatgcagtgg ttcaaaattt taacatgaaa      900
51 gacttttagt ggaagtggta tataacaagt ggtttaaatc ctacatttga tgcatttgat      960
52 tgtcaacttc atgagtttca tatggaaaat gataaacttg ttgggaactt aacatggcgc      1020
53 ataaaaactt tggatgggtg tttctttact cgatctgctg tgcaaacatt tgttcaagat      1080
54 ccagatcttc ctggagcact ttataatcat gacaatgagt ttcttacta ccaagatgac      1140
55 tggatcatat tatcttccca aatcgaaaac aaaccgatg attacatatt cgtatactac      1200
56 cgaggtcgaa acgacgatg ggatggatgac ggtgggtccg tgatctacac ccgaagcccg      1260
57 acactcccg aatcgatcat cccaaaccta caaaaagcag ccaaatccgt ggttcgagac      1320
58 ttaacaatt tcataacaac cgacaatagt tgtgggcctg agcctccatt ggtggaaaag      1380
59 cttgagaaaa cagcggaaga gggcgagaag ttgttgataa aagaagctgt agagatagaa      1440
60 gaagagggtt aaaaagaggt ggagaaggtt agagatactg agatgacttt gtttcagagg      1500
61 ttgcttgaag ggtttaagga gttgcaacaa gatgaagaga atttgtgag ggagttgagt      1560

```

JUL 07 2000

TECH. CENTER

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/075,375A

DATE: 06/16/2000

TIME: 17:59:26

Input Set : A:\Seqlist.txt

Output Set: N:\CRF3\06162000\I075375A.raw

```

62 aaagaagaga aggaaattct gaatgaactt caaatggaag cgactgaagt tgaaaagctt 1620
63 ttggggcgcg cgttaccgat taggaaactt agataaattt cgaatgattga ttcagacaat 1680
64 atatatagtc atattggatta ttagataact agagaaaacc caaaaaaact tttgtatacg 1740
65 tgataaacgt gtttgtgatt tgtttattgg cttaaaattg tagaataagct tttttaattc 1800
66 tttaaaaaaa aattgattgt ctattggtag ccaagaggtt cagcaaaaga ctgaaagggt 1860
67 ctgcccgtt tgcgggttag gccaaatttt ttggggcggg atcgggtctt atcgggtttt 1920
68 tctttaaaac atgtattttt tataaatgat gagttatttt caatttttgg ctaaaaaaaa 1980
69 a
71 <210> SEQ ID NO: 2
72 <211> LENGTH: 1412
73 <212> TYPE: PRT
74 <213> ORGANISM: Lactuca sativa
76 <400> SEQUENCE: 2
77 Met Ala Leu Ser Leu His Thr Val Phe Leu Cys Lys Glu Glu Ala Leu
78 1 5 10 15
79 Asn Leu Tyr Ala Arg Ser Pro Cys Asn Glu Arg Phe His Arg Ser Gly
80 20 25 30
81 Gln Pro Pro Thr Asn Ile Ile Met Met Lys Ile Arg Ser Asn Asn Gly
82 35 40 45
83 Tyr Phe Asn Ser Phe Arg Leu Phe Thr Ser Tyr Lys Thr Ser Ser Phe
84 50 55 60
85 Ser Asp Ser Ser His Cys Lys Asp Lys Ser Gln Ile Cys Ser Ile Asp
86 65 70 75 80
87 Thr Ser Phe Glu Glu Ile Gln Arg Phe Asp Leu Lys Arg Gly Met Thr
88 85 90 95
89 Leu Ile Leu Glu Lys Gln Trp Arg Gln Phe Ile Gln Leu Ala Ile Val
90 100 105 110
91 Leu Val Cys Thr Phe Val Ile Val Pro Arg Val Asp Ala Val Asp Ala
92 115 120 125
93 Leu Lys Thr Cys Ala Cys Leu Leu Lys Glu Cys Arg Ile Glu Leu Ala
94 130 135 140
95 Lys Cys Ile Ala Asn Pro Ser Cys Ala Ala Asn Val Ala Cys Leu Gln
96 145 150 155 160
97 Thr Cys Asn Asn Arg Pro Asp Glu Thr Glu Cys Gln Ile Lys Cys Gly
98 165 170 175
99 Asp Leu Phe Glu Asn Ser Val Val Asp Gln Phe Asn Glu Cys Ala Val
100 180 185 190
101 Ser Arg Lys Lys Cys Val Pro Arg Lys Ser Asp Val Gly Glu Phe Pro
102 195 200 205
103 Val Pro Asp Arg Asn Ala Val Val Gln Asn Phe Asn Met Lys Asp Phe
104 210 215 220
105 Ser Gly Lys Trp Tyr Ile Thr Ser Gly Leu Asn Pro Thr Phe Asp Ala
106 225 230 235 240
107 Phe Asp Cys Gln Leu His Glu Phe His Met Glu Asn Asp Lys Leu Val
108 245 250 255
109 Gly Asn Leu Thr Trp Arg Ile Lys Thr Leu Asp Gly Gly Phe Phe Thr
110 260 265 270
111 Arg Ser Ala Val Gln Thr Phe Val Gln Asp Pro Asp Leu Pro Gly Ala
112 275 280 285

```

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/075,375A

DATE: 06/16/2000  
TIME: 17:59:26

Input Set : A:\Seqlist.txt

Output Set: N:\CRF3\06162000\I075375A.raw

113 Leu Tyr Asn His Asp Asn Glu Phe Leu His Tyr Gln Asp Asp Trp Tyr  
114 290 295 300  
115 Ile Leu Ser Ser Gln Ile Glu Asn Lys Pro Asp Asp Tyr Ile Phe Val  
116 305 310 315 320  
117 Tyr Tyr Arg Gly Arg Asn Asp Ala Trp Asp Gly Tyr Gly Gly Ser Val  
118 325 330 335  
119 Ile Tyr Thr Arg Ser Pro Thr Leu Pro Glu Ser Ile Ile Pro Asn Leu  
120 340 345 350  
121 Gln Lys Ala Ala Lys Ser Val Gly Arg Asp Phe Asn Asn Phe Ile Thr  
122 355 360 365  
123 Thr Asp Asn Ser Cys Gly Pro Glu Pro Pro Leu Val Glu Arg Leu Glu  
124 370 375 380  
125 Lys Thr Ala Glu Glu Gly Glu Lys Leu Leu Ile Lys Glu Ala Val Glu  
126 385 390 395 400  
127 Ile Glu Glu Glu Val Glu Lys Glu Val Glu Lys Val Arg Asp Thr Glu  
128 405 410 415  
129 Met Thr Leu Phe Gln Arg Leu Leu Glu Gly Phe Lys Glu Leu Gln Gln  
130 420 425 430  
131 Asp Glu Glu Asn Phe Val Arg Glu Leu Ser Lys Glu Glu Lys Glu Ile  
132 435 440 445  
133 Leu Asn Glu Leu Gln Met Glu Ala Thr Glu Val Glu Lys Leu Phe Gly  
134 450 455 460  
135 Arg Ala Leu Pro Ile Arg Lys Leu Arg Met Ala Leu Ala Pro His Ser  
136 465 470 475 480  
137 Asn Phe Leu Ala Asn His Glu Thr Ile Lys Tyr Tyr Val Gly Ser Lys  
138 485 490 495  
139 Leu Pro Gly His Lys Arg Phe Ser Trp Gly Trp Glu Asp Tyr Phe Gly  
140 500 505 510  
141 Ser Ile Val Val Ala Lys Ile Cys Ser Ser Arg Arg Ile Pro Arg Tyr  
142 515 520 525  
143 Phe Arg Lys Ser Pro Arg Ile Cys Cys Gly Leu Asp Ser Arg Gly Leu  
144 530 535 540  
145 Gln Leu Phe Ser His Gly Lys His Asn Leu Ser Pro Ala His Ser Ile  
146 545 550 555 560  
147 Asn Gln Asn Val Pro Lys Gly Asn Ser Gly Cys Lys Phe Pro Lys Asp  
148 565 570 575  
149 Val Ala Leu Met Val Trp Glu Lys Trp Gly Gln Phe Ala Lys Thr Ala  
150 580 585 590  
151 Ile Val Ala Ile Phe Ile Leu Ser Val Ala Ser Lys Ala Asp Ala Val  
152 595 600 605  
153 Asp Ala Leu Lys Thr Cys Thr Cys Leu Leu Lys Glu Cys Arg Leu Glu  
154 610 615 620  
155 Leu Ala Lys Cys Ile Ser Asn Pro Ala Cys Ala Ala Asn Val Ala Cys  
156 625 630 635 640  
157 Leu Gln Thr Cys Asn Asn Arg Pro Asp Glu Thr Glu Cys Gln Ile Lys  
158 645 650 655  
159 Cys Gly Asp Leu Phe Glu Asn Ser Val Val Asp Glu Phe Asn Glu Cys  
160 660 665 670  
161 Ala Val Ser Arg Lys Lys Cys Val Pro Arg Lys Ser Asp Val Gly Asp

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/075,375A

DATE: 06/16/2000

TIME: 17:59:26

Input Set : A:\Seqlist.txt

Output Set: N:\CRF3\06162000\I075375A.raw

```

162          675          680          685
163 Phe Pro Val Pro Asp Pro Ser Val Leu Val Gln Lys Phe Asp Met Lys
164          690          695          700
165 Asp Phe Ser Gly Lys Trp Phe Ile Thr Arg Gly Leu Asn Pro Thr Phe
166 705          710          715          720
167 Asp Ala Phe Asp Cys Gln Leu His Glu Phe His Thr Glu Glu Asn Lys
168          725          730          735
169 Leu Val Gly Asn Leu Ser Trp Arg Ile Arg Thr Pro Asp Gly Gly Phe
170          740          745          750
171 Phe Thr Arg Ser Ala Val Gln Lys Phe Val Gln Asp Pro Lys Tyr Pro
172          755          760          765
173 Gly Ile Leu Tyr Asn His Asp Asn Glu Tyr Leu Leu Tyr Gln Asp Asp
174          770          775          780
175 Trp Tyr Ile Leu Ser Ser Lys Val Glu Asn Ser Pro Glu Asp Tyr Ile
176 785          790          795          800
177 Phe Val Tyr Tyr Lys Gly Arg Asn Asp Ala Trp Asp Gly Tyr Gly Gly
178          805          810          815
179 Ser Val Leu Tyr Thr Arg Ser Ala Val Leu Pro Glu Ser Ile Ile Pro
180          820          825          830
181 Glu Leu Gln Thr Ala Ala Gln Lys Val Gly Arg Asp Phe Asn Thr Phe
182          835          840          845
183 Ile Lys Thr Asp Asn Thr Cys Gly Pro Glu Pro Pro Leu Val Glu Arg
184          850          855          860
185 Leu Glu Lys Lys Val Glu Glu Gly Glu Arg Thr Ile Ile Lys Glu Val
186 865          870          875          880
187 Glu Glu Ile Glu Glu Val Glu Lys Val Arg Asp Lys Glu Val Thr
188          885          890          895
189 Leu Phe Ser Lys Leu Phe Glu Gly Phe Lys Glu Leu Gln Arg Asp Glu
190          900          905          910
191 Glu Asn Phe Leu Arg Glu Leu Ser Lys Glu Glu Met Asp Val Leu Asp
192          915          920          925
193 Gly Leu Lys Met Glu Ala Thr Glu Val Glu Lys Leu Phe Gly Arg Ala
194          930          935          940
195 Leu Pro Ile Arg Lys Leu Met Ala Val Ala Thr His Cys Phe Thr Ser
196 945          950          955          960
197 Pro Cys His Asp Arg Ile Arg Phe Phe Ser Ser Asp Asp Gly Ile Gly
198          965          970          975
199 Arg Leu Gly Ile Thr Arg Lys Arg Ile Asn Gly Thr Phe Leu Leu Lys
200          980          985          990
201 Ile Leu Pro Pro Ile Gln Ser Ala Asp Leu Arg Thr Thr Gly Gly Arg
202          995          1000          1005
203 Ser Ser Arg Pro Leu Ser Ala Phe Arg Ser Gly Phe Ser Lys Gly Ile
204          1010          1015          1020
205 Phe Asp Ile Val Pro Leu Pro Ser Lys Asn Glu Leu Lys Glu Leu Thr
206 1025          1030          1035          1040
207 Ala Pro Leu Leu Leu Lys Leu Val Gly Val Leu Ala Cys Ala Phe Leu
208          1045          1050          1055
209 Ile Val Pro Ser Ala Asp Ala Val Asp Ala Leu Lys Thr Cys Ala Cys
210          1060          1065          1070

```

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/075,375A

DATE: 06/16/2000

TIME: 17:59:26

Input Set : A:\Seqlist.txt

Output Set: N:\CRF3\06162000\I075375A.raw

```

211 Leu Leu Lys Gly Cys Arg Ile Glu Leu Ala Lys Cys Ile Ala Asn Pro
212      1075      1080      1085
213 Ala Cys Ala Ala Asn Val Ala Cys Leu Gln Thr Cys Asn Asn Arg Pro
214      1090      1095      1100
215 Asp Glu Thr Glu Cys Gln Ile Lys Cys Gly Asp Leu Phe Glu Asn Ser
216 1105      1110      1115      1120
217 Val Val Asp Glu Phe Asn Glu Cys Ala Val Ser Arg Lys Lys Cys Val
218      1125      1130      1135
219 Pro Arg Lys Ser Asp Leu Gly Glu Phe Pro Ala Pro Asp Pro Ser Val
220      1140      1145      1150
221 Leu Val Gln Asn Phe Asn Ile Ser Asp Phe Asn Gly Lys Trp Tyr Ile
222      1155      1160      1165
223 Thr Ser Gly Leu Asn Pro Thr Phe Asp Ala Phe Asp Cys Gln Leu His
224      1170      1175      1180
225 Glu Phe His Thr Glu Gly Asp Asn Lys Leu Val Gly Asn Ile Ser Trp
226 1185      1190      1195      1200
227 Arg Ile Lys Thr Leu Asp Ser Gly Phe Phe Thr Arg Ser Ala Val Gln
228      1205      1210      1215
229 Lys Phe Val Gln Asp Pro Asn Gln Pro Gly Val Leu Tyr Asn His Asp
230      1220      1225      1230
231 Asn Glu Tyr Leu His Tyr Gln Asp Asp Trp Tyr Ile Leu Ser Ser Lys
232      1235      1240      1245
233 Ile Glu Asn Lys Pro Glu Asp Tyr Ile Phe Val Tyr Tyr Arg Gly Arg
234      1250      1255      1260
235 Asn Asp Ala Trp Asp Gly Tyr Gly Gly Ala Val Val Tyr Thr Arg Ser
236 1265      1270      1275      1280
237 Ser Val Leu Pro Asn Ser Ile Ile Pro Glu Leu Glu Lys Ala Ala Lys
238      1285      1290      1295
239 Ser Ile Gly Arg Asp Phe Ser Thr Phe Ile Arg Thr Asp Asn Thr Cys
240      1300      1305      1310
241 Gly Pro Glu Pro Ala Leu Val Glu Arg Ile Glu Lys Thr Val Glu Glu
242      1315      1320      1325
243 Gly Glu Arg Ile Ile Val Lys Glu Val Glu Glu Ile Glu Glu Glu Val
244      1330      1335      1340
245 Glu Lys Glu Val Glu Lys Val Gly Arg Thr Glu Met Thr Leu Phe Gln
246 1345      1350      1355      1360
247 Arg Leu Ala Glu Gly Phe Asn Glu Leu Lys Gln Asp Glu Glu Asn Phe
248      1365      1370      1375
249 Val Arg Glu Leu Ser Lys Glu Glu Met Glu Phe Leu Asp Glu Ile Lys
250      1380      1385      1390
251 Met Glu Ala Ser Glu Val Glu Lys Leu Phe Gly Lys Ala Leu Pro Ile
252      1395      1400      1405
253 Arg Lys Val Arg
254      1410
256 <210> SEQ ID NO: 3
257 <211> LENGTH: 1589
258 <212> TYPE: DNA
259 <213> ORGANISM: Nicotiana tabacum
261 <400> SEQUENCE: 3

```

VERIFICATION SUMMARY

PATENT APPLICATION: US/09/075,375A

DATE: 06/16/2000

TIME: 17:59:27

Input Set : A:\Seqlist.txt

Output Set: N:\CRF3\06162000\I075375A.raw

L:12 M:271 C: Current Filing Date differs, Replaced Current Filing Date